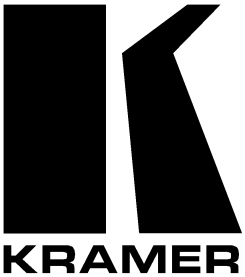
Kramer Electronics, Ltd.



USER MANUAL

Model:

830

Digital / Analog Audio Generator

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your **830** *Digital / Analog Audio Generator*! This product is ideal for the testing of digital and analog audio equipment, such as A/D and D/A converters, SRC converters, audio delay lines, as well as equipment related to AC-3, DTS and Dolby digital audio.

The package includes the following items:

- **830** *Digital / Analog Audio Generator*
- Power adapter (12V DC Input)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual[2]
- Use Kramer high performance high resolution cables[3]

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3 Overview

The **830** is a unique all-in-one digital / analog audio generator for the testing and aligning of audio equipment. In particular, the **830** *Digital / Analog Audio Generator* outputs:

- High quality 600Ω balanced stereo analog audio on detachable terminal block connectors
- All digital signals: AES/EBU 110Ω and AES-ID3 75Ω transformer coupled (professional formats), and S/PDIF 75Ω and Optical (consumer formats)

You can set the **830** to produce analog audio[1] with a:

- Source tone with a frequency of: 40Hz, 100Hz, 1kHz or 10kHz, and an amplitude of: -6dB, 0dB, +6dB or +10dB

You can set the **830** to produce digital audio[1] with a:

- Source tone with a frequency of: 40Hz, 100Hz, 1kHz or 10kHz, and an amplitude of: -16dBFS, -10dBFS, -4dBFS, or 0dBFS
- Sample rate of: 32k, 44.1k, 48k, or 96k with 24 bits word length

You can independently turn ON or OFF the signal to the left and/or right channels for correct stereo signal assignment, when producing analog and digital audio.

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer TOOLS **830** away from moisture, excessive sunlight and dust

Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit[2].

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

1 The presets affect both analog and digital outputs

2 For example: model number AD2512C, part number 2535-000251

4 Your 830 Digital / Analog Audio Generator

Figure 1 and Table 1 define the **830** *Digital / Analog Audio Generator*:

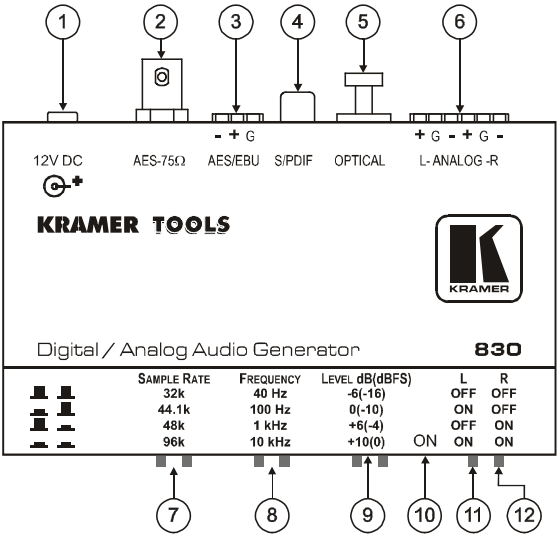

Figure 1: 830 Digital / Analog Audio Generator

Table 1: 830 Digital / Analog Audio Generator Features

#	Feature	Function
1	12V DC	+12V DC connector for powering the unit
2	*AES 75Ω* (*AES-ID3*) BNC Connector	Connects to the digital audio acceptor
3	*AES / EBU* Terminal Block Connector	Connects to the digital audio acceptor
4	*S/PDIF* RCA Connector	Connects to the digital audio acceptor
5	*OPTICAL* Connector	Connects to the digital audio acceptor
6	*L*[1]*-ANALOG-R*[2] Terminal Block Connectors	Connect to the analog audio acceptor
7	*SAMPLE RATE* Pair of Selector Switches	Set to choose the sample rate[3]
8	*FREQUENCY* Pair of Selector Switches	Set to choose the frequency[4]
9	*Level dB (dBFS)* Pair of Selector Switches	Sets the level for digital[5] and analog[6] audio
10	*ON* LED	Illuminates when receiving power
11	*L*[1] Channel[7] Selector Switch	Selects the channel(s)[1]
12	*R*[2] Channel[7] Selector Switch	

1 Left

2 Right

3 Sample rates: 32k, 44.1k, 48k, and 96k

4 Frequency: 40 Hz, 100 Hz, 1 kHz, and 10 kHz

5 Digital decibel level: -16dBFS, -10dBFS, -4dBFS, and 0dBFS

6 Analog decibel level: -6dB, 0dB, +6dB, and +10dB

7 Applies to the digital and analog outputs

4.1 The 830 Underside

Figure 2 and Table 2 define the **830** underside:

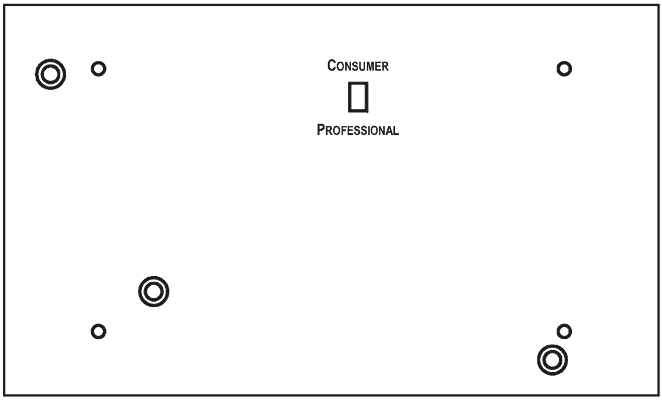

Figure 2: 830 Digital / Analog Audio Generator Underside

Table 2: 830 Digital / Analog Audio Generator Underside Features

Feature	Function
CONSUMER – PROFESSIONAL Switch	Slide down to PROFESSIONAL or slide up to *CONSUMER* to choose the digital audio standard format

1 Both channels (that is, left and right), one channel or neither channel

5 Connecting the 830 Digital / Analog Audio Generator

To connect your **830**, as illustrated in the example in Figure 3, do the following[1]:

1. Connect up to four of the digital outputs[2] to your digital audio acceptors.
2. Connect the analog output to your analog audio acceptors.
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 3).
4. Set the selector switches, as appropriate, to determine the sample rate, the frequency, the level, and the channel.

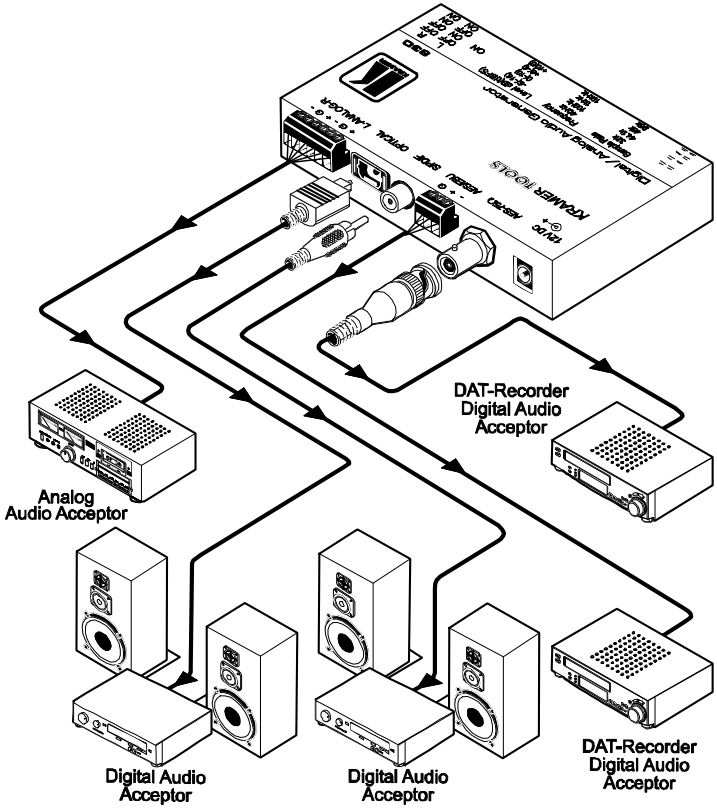

Figure 3: Connecting the 830 Digital / Analog Audio Generator

1 Switch OFF the power on each device before connecting it to your 830. After connecting your 830, switch on its power and then switch on the power on each device

2 You do not have to connect all the outputs

The example in Figure 4 illustrates the digital outputs set to a 48k sample rate, a frequency of 10 kHz, a level of -4 dBFS, with only the left channel active:

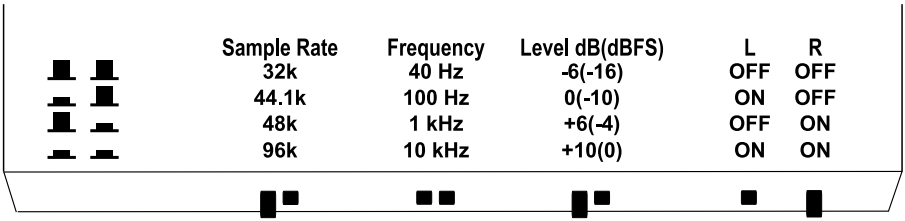

Figure 4: Setting the Selector Switches

6 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[1] *of the 830 Digital / Analog Audio Generator*

OUTPUTS:	DIGITAL: AES 75Ω on a BNC connector, AES/EBU on a terminal block connector, S/PDIF on an RCA connector, and TosLink Optical connector ANALOG: balanced stereo 600Ω on a terminal block connector
AUDIO THD + NOISE:	<0.65% @ 0dB 1kHz
NOISE FLOOR:	-100dBV
WORD LENGTH:	24 bit
STANDARDS:	AES/EBU; AES-ID3; S/PDIF; TosLink Optical
SAMPLING:	32, 44.1, 48, 96 kHz
FREQUENCY:	40, 100, 1000, 10000 Hz
LEVEL (ANALOG):	-6, 0, +6, +10 dBV
LEVEL (DIGITAL):	-16, -10, -4, 0 dBFS decibels
POWER SOURCE:	12VDC, 130mA
DIMENSIONS:	12 cm x 7.5 cm x 2.5 cm (4.7" x 2.95" 0.98", W, D, H)
WEIGHT:	0.3 kg (0.67 lbs.) approx
ACCESSORIES:	Power Adapter

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900-001041 REV 2